

REMARKS

The Office Action dated April 2, 2008 has been received and its contents carefully noted. Claims 1, 3-18, 20-23, 26 and 28-29 were pending herein. Claims 1, 3-18, 20-23, 26 and 28-29 are rejected. By this Amendment, claims 3-5, 13-16, 26 and 28-29 have been cancelled. Claim 1 has been amended to incorporate the limitations of cancelled claim 26.

Rejections Under 35 USC 103(a)

I. Claims 1, 7-12 and 26 stand rejected as being unpatentable over Masao (JP 202-064044) in view of Hirose (US 5762745). The rejection as to claims 1 and 7-12 is traversed. Applicant respectfully requests withdrawal and consideration in view of the amended claims and arguments presented herein.

Regarding claim 1, the Office Action states on page 3 that “since the air moves through air conditioning units directly before its entry to the coating unit, its temperature and humidity is controlled.” In response, Applicant submits that the air conditioning unit disclosed in Masao et al does not meet his claimed structure with a temperature and humidity controller (air blowing mechanism in claim 1) located to accurately control the internal conditions of the coating unit.

In semiconductor technology, Applicant emphasizes it is imperative for the coating of a film on a substrate to be uniform. Any slight external temperature variation may cause irreversible deformities to the coating layer. Applicant’s preferred, exemplary temperature and humidity controller, 69, provides air controlled at a prescribed temperature and humidity supplied “directly” into the coating unit, (SCT) 18. See Figure 13; See also Figure 6. Applicant’s disclosure states, “By controlling the inner region of the coating unit (SCT) 18 at a prescribed temperature and humidity, the conditions in the step of forming the coating film can be made constant so as to make it possible to maintain constant the characteristics of the coating film thus formed”. Applicant’s claimed structure places the air blowing mechanism (temperature/humidity controller) upstream of the heating unit, as also shown in Figure 13, to ensure that the controlled air is not affected by the downstream heating unit 55c, before the air passes through the spin coater 55a. The air conditioning unit in Masao, rather, treats air exiting the heaters, prior to entering the coating unit. In Masao’s arrangement, the temperature and humidity of the air leaving the air conditioning unit will not be sufficiently controlled before it

enters the coating unit. Hence, the films produced there inevitably will exhibit some non-uniformity. Given this important structural difference in arrangement, Applicant respectfully requests withdrawal and reconsideration of the rejection.

Next, the Office Action states, "it would be possible to reverse the air direction merely by configuring the blowing fans reversibly... Other modest rearrangements concerning the placement of the exhaust outlet or casing positions to accommodate the reversal of airflow would be within the capacity of one of ordinary skill. Further, it has been held that rearranging the parts of an invention involves only routine skill in the art." These assertions are erroneous.

Applicant explains his invention in more detail with respect to his Figure 13. He discloses a housing, 57, comprising individual casings 55a to 55e with a clearance, 58, formed between the casings. The casings from top to bottom, as shown in Figure 14, encompass a baking unit, 22 (DLB), low temperature heating unit, 21, (LHP), and a temperature control unit, 20, (CPL) a film thickness measurement unit, 19, and a coating unit, 18. Air flowing through the clearance (air passageway), 58, is discharged to the outside by an exhaust device, 59, through an exhaust port 57a formed at the top of the housing. The clearance/air passageway provides heat insulation. The temperature and humidity controller (air blowing mechanism), 69, is connected to the coating unit, 18, disposed within 55a, so as to blow air having a controlled temperature and humidity directly into the coating unit. This fully controls the conditions within the coating unit. The casing of the coating unit conducts air blown from the air blowing mechanism into the coating unit to be exhausted from the coating unit air passageway. Thus, greater heat insulation for the coating process is achieved. This arrangement of units and air flow improves reproducibility of films in Applicant's coating process unit.

In contrast, Figure 1 of Masao shows the directional flow of clean air through the casing exhausted by the exhaust unit disposed below the floor. Those of ordinary skill in the art appreciate Masao's motivation to use gravitational forces acting upon particles, to preclude the particles from scattering within the air space of the casing. However, contrary to this convenience, Applicant prohibits the down flow of clean air because it can influence other units (e.g. heating units) that the air contacts along the way to reaching the coating unit. In Masao's arrangement, the coating process unit thermally is influenced by heating unit HP through the sidewall thereof. Thus, the quality of films formed in Masao's coating process unit SC may

fluctuate, depending on the temperature of the air. Because the claimed invention eliminates advance thermal influences on the coating unit that are present as in Masao, Applicant's invention patentably distinguishes over Masao. Moreover, Applicant's recited exhaust port is located "above the casing of the heating unit" (at the top of the housing 57 of Figure 13), in proximity to the baking unit. This protects the coating unit by ensuring that toxins are conducted "up" rather than down towards the coating unit.

For at least these reasons, nothing in Masao teaches or suggests Applicant's claimed arrangement. Further, nothing in Hirose remedies these deficiencies of Masao with respect to Applicant's arrangement. Hence, Applicant respectfully requests withdrawal and reconsideration of the rejection.

The rejection as to claim 7-12 is traversed on the same arguments presented for claim 1, *supra*. As such, Applicant respectfully requests withdrawal and reconsideration of the rejection.

II. Claims 6, 17-18 and 20 stand rejected under 35 USC 103(a) as being unpatentable over Masao and Hirose further view of Hayashi. Hayashi does not remedy the above described deficiencies of Masao and Hirose. Thus, the rejection is traversed for claims 6, 17-18 and 20. For the reasons urged for in claim 1, *supra*, Applicant respectfully requests withdrawal and reconsideration of the rejection to these claims.

III. Claims 21-23 stand rejected under 35 USC 103(a) as being unpatentable over Masao, Hirose, and Hayashi in further view of Nakai. Nakai does not remedy the aforementioned deficiencies. Hence, the rejection is traversed for claims 21-23. For the reasons submitted for in claim 1, *supra*, Applicant respectfully requests withdrawal and reconsideration of the rejection to these claims.

IV. Claim 27 stands rejected under 35 USC 103(a) as being unpatentable over Masao in view of Hirose and in further view of Mahara et al. Mahara likewise fails to remedy the deficiencies of Masao and Hirose. The rejection as to claim 27 is traversed. For the reasons given for in claim 1, *supra*, Applicant respectfully requests withdrawal and reconsideration of the rejection to this claim.

V. Claims 13, 15-16, and 29 stand rejected under 35 USC 103(a) as being unpatentable over Hayashi in view of Davis et al. The rejection of claims 13, 15-16 and 29 is moot.

VI. Claim 14 stands rejected under 35 USC 103(a) as being unpatentable over Hayashi in view of Davis et al and further in view of Komori et al. The rejection of claim 14 is moot.

VII. Claims 3 and 28 stand rejected under 35 USC 103(a) as being unpatentable over Hayashi in view of Hirose and further in view of Kwon. The rejection of claims 3 and 28 is moot.

VIII. Claim 4 stands rejected under 35 USC 103(a) as being unpatentable over Hayashi in view of Hirose in view of Kwon and further in view of Mahara. The rejection of claim 4 is moot.

IX. Claim 5 stands rejected under 35 USC 103(a) as being unpatentable over Hayashi in view of Hirose in view of Kwon and further in view of Akagi et al. The rejection of claim 5 is moot.

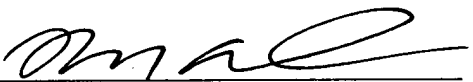
CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Therefore it is respectfully requested that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

If any fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033082M252.

Respectfully submitted,
SMITH, GAMBRELL & RUSSELL, LLP

By:


Michael A. Makuch, Reg. No. 32,263
1130 Connecticut Ave., N.W., Suite 1130
Washington, D.C. 20036
Telephone: (202) 263-4300
Facsimile: (202) 263-4329

Dated: July 1, 2008